



# INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We make Indiana a cleaner, healthier place to live.*

Frank O'Bannon  
Governor

Lori F. Kaplan  
Commissioner

August 18, 2003

100 North Senate Avenue  
P. O. Box 6015  
Indianapolis, Indiana 46206-6015  
(317) 232-8603  
(800) 451-6027  
[www.IN.gov/idem](http://www.IN.gov/idem)

TO: Interested Parties / Applicant

RE: PurdueUniversity  
157-16409-00012  
Chief, Permits Branch  
Office of Air Quality

## Notice of Decision: Section 112(j) Applicability Determination

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 4-21.5-3-5 (f) this order is effective fifteen (15) days after it is served. When served by U.S. mail, the order is effective three (3) calendar days from the mailing of this notice pursuant to IC 4-21.5-3-2(e).

If you wish to challenge this decision, IC 4-21.5-3-7 requires that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within (18) eighteen days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for consideration at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosure

112J DET.wpd 10/22/02



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Mr. Wayne W. Kjonaas  
Purdue University  
401 South Grant Street  
West Lafayette, IN 47907-2024

61-50 DW

Re: Response to Review Request No. 16409:  
Section 112(j) Applicability Determination  
Plant ID: 157-00012

Dear Mr. Kjonaas:

Purdue University, located at 1665 L.J. Freehafer Hall in West Lafayette, Indiana, submitted a request for an applicability determination regarding the requirements of Section 112(j) of the Clean Air Act (CAA) on May 14, 2002. The letter was submitted in accordance with 40 CFR 63.52(d)(1) and requested that the Indiana Department of Environmental Management, Office of Air Quality (IDEM, OAQ) determine if Purdue University is subject to the requirements of Section 112(j) (40 CFR 63.50 through 63.56) for the following source categories:

- Brick and Structural Clay Products;
- Cellulose Production Manufacturing;
- Clay Ceramics Manufacturing;
- Combustion Turbines;
- Engine Test Cells/Stand;
- Fabric Printing, Coating, and Dyeing;
- Flexible Polyurethane Foam Fabrication Operations;
- Friction Products Manufacturing;
- Generic MACT source categories:
  - Carbon Black Production,
  - Cyanide Chemicals Manufacturing,
  - Ethylene Production, and
  - Spandex Production;
- Integrated Iron and Steel;
- Large Appliance Surface Coating;
- Metal Can Surface Coating;
- Metal Coil Surface Coating;
- Metal Furniture Surface Coating;
- Miscellaneous Coating Manufacturing;
- Miscellaneous Metal Parts and Products Surface Coating;
- Miscellaneous Organic Chemical Production and Processes;
- Paint Stripping Operations;
- Paper and Other Web Surface Coating;
- Plastic Parts Surface Coating;
- Plywood and Composite Wood Products;
- Polyvinyl Chloride and Copolymers Production;

- Reciprocating Internal Combustion Engine (RICE);
- Reinforced Plastics Composites Production; and
- Wood Building Products Surface Coating.

Pursuant to 40 CFR 63.50, the requirements of Section 112(j) will apply only if your entire source is a major source of hazardous air pollutants (HAPs) and one or more of your processes or emissions units belong in a category or subcategory for which the United States Environmental Protection Agency (U.S. EPA) has failed to promulgate an emission standard on or before the Section 112(j) deadline.

#### MAJOR SOURCE DETERMINATION

The information submitted in the Part 1 MACT Application indicates that Purdue University is a major source of HAPs. In addition, IDEM, OAQ calculated the potential to emit HAPs from the coal-fired boilers at Purdue University using emission factors available in Chapter 1.1 of the U.S. EPA document, *Compilation of Air Pollutant Emission Factors, Volume I: Stationary Point and Area Sources* (AP-42, Fifth Edition, January 1995, with Supplements). IDEM, OAQ found that one of the coal-fired boilers rated at 248 million British thermal units per hour (mmBtu/hr) has the potential to emit 62 tons per year of a single HAP, hydrochloric acid (HCl). This calculation confirmed that Purdue University is a major source of HAPs. Since Purdue University is a major source of HAPs, IDEM, OAQ evaluated the source categories for which Purdue University requested an applicability determination.

#### SOURCE CATEGORY DETERMINATION

##### **1. Various Research or Laboratory Activities**

The applicability criteria for Section 112(j) requirements in 40 CFR 63.50(a)(1) contain an exemption from the Section 112(j) requirements for research or laboratory activities as defined in 40 CFR 63.51. The definition of "research or laboratory activities" in 40 CFR 63.51 includes three main criteria that must be met for the activity to be classified as a research or laboratory activity:

1. The primary purpose of the activity is to conduct research and development into new processes and products where such activity is operated under the close supervision of technically trained personnel;
2. The activity is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner; and
3. Where the source is not in a source category, specifically addressing research or laboratory activities, that is listed pursuant to section 112(c)(7) of the Clean Air Act.

Purdue University's activities that could be reasonably interpreted to fall within the following source categories meet the criteria of that definition:

- Combustion Turbines;
- Metal Can Surface Coating;
- Miscellaneous Coating Manufacturing;
- Miscellaneous Metal Parts and Products Surface Coating;
- Miscellaneous Organic Chemical Production and Processes;
- Paint Stripping Operations;
- Plastic Parts Surface Coating; and
- Plywood and Composite Wood Products.

The primary purposes of the activities at Purdue University within these source categories are to conduct research and development where such activities are operated under the close supervision of technically trained personnel. These activities include teaching and research activities associated with the educational nature of the university. The activities may be found as part of a laboratory class or as part of faculty or student research. The purpose of the activities is to promote learning through independent research and hands-on laboratory activities. The activities generate thought and new ideas that may eventually lead to new processes or products or knowledge. For example, students, laboratory technicians, and faculty at the university's Coatings Applications and Research Laboratory (CARL)

perform research and development of coatings technologies. The activities are operated under the close supervision of technically trained personnel such as professors, laboratory technicians, and upper level students with more experience.

The purpose of these activities at Purdue University is not to manufacture products for commercial sale in commerce. The activities do not produce products for commercial sale. Independent manufacturers provide the product samples in the form of specially cut coupons that are used by the researchers in CARL for coating using experimental coatings and experimental coating and curing procedures. The specially cut coupons do not function as products. After CARL is finished with the coupons, the coupons may or may not be returned to manufacturers for further testing by the manufacturers, and the manufacturers do not sell them.

None of the activities are in a source category specifically addressing research or laboratory activities that is listed pursuant to section 112(c)(7) of the Clean Air Act. The U.S. EPA has not yet completed a rulemaking pursuant to Section 112(c)(7) of the Clean Air Act to regulate research or laboratory activities. When U.S. EPA published an advance notice of proposed rulemaking to regulate research and development activities on May 12, 1997, the U.S. EPA focused on industrial research and development activities and indicated that they were not aware of other research and development sources that need to be added to the source category list. U.S. EPA indicated that they would need more information about other types of research and development sources to determine if those sources should be regulated by Section 112. U.S. EPA included universities in the list of those other types of research and development sources. Therefore, the preamble discussion from May 12, 1997 Federal Register indicates that the U.S. EPA considers university activities to fall within the scope of research and development activities and has not yet decided to regulate these activities.

Since Purdue University's activities within the list of source categories presented meet the criteria of research or laboratory activities, Purdue University's activities within these source categories are not subject to the requirements of Section 112(j), 40 CFR 63.50 through 63.56. Purdue University will not be required to submit a Part 2 MACT Application in accordance with 40 CFR 63.53(b) for these affected source categories.

## **2. Reciprocating Internal Combustion Engine NESHAP**

IDEM, OAQ used the following information to determine if the reciprocating internal combustion engines at Purdue University belong to the affected source category, Reciprocating Internal Combustion Engines (RICE):

- The Part 1 Maximum Achievable Control Technology (MACT) Application;
- Supplemental information provided by Purdue University on October 15, 2002;
- The proposed rule from the December 19, 2002 *Federal Register*; and
- Background information available at the U.S. EPA Air Toxics Website at <http://www.epa.gov/ttn/atw/combust/engine/ricepg.html> and [http://www.epa.gov/ttn/atw/112j/info/112\(j\)-table2.html](http://www.epa.gov/ttn/atw/112j/info/112(j)-table2.html).

There is no final MACT Standard for the RICE source category at this time. The proposed rule for this source category was published in the *Federal Register* on December 19, 2002. Section 63.6590(a) of the proposed rule defines the affected source to which the RICE MACT will apply as "any existing, new, or reconstructed stationary RICE located at a major source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand." Several criteria for exceptions for units that are included in the definition of affected source but that will not be subject to any of the requirements of the RICE MACT or the General Provisions at 40 CFR Part 63, Subpart A are listed in 40 CFR 63.6590(b) of the proposed rule, including: a compression ignition stationary RICE and a stationary RICE with a manufacturer's nameplate reading of less than or equal to 500 brake horsepower.

There are four types of stationary reciprocating internal combustion engines present at Purdue University:

- Engines powered by various fuels that are used in research and laboratory activities;
- Engines powered by various fuels that are used for education and teaching as part of classes;
- One diesel-fired generator, DG-3, rated at 1800 kilowatts (approximately 2414 horsepower), located at the Purdue University power plant; and
- Engines used solely for emergency service including:
  - Several compression ignition, diesel-fired generators – several rated at less than 500 horsepower, one rated at 536 horsepower, one rated at 671 horsepower, and one rated at 738 horsepower; and
  - Three natural gas-fired units rated at less than 90 kilowatts (approximately 120 horsepower) located at the Aquaculture Research Facility.

The engines used in research and laboratory activities and for education and teaching as part of classes at the University are exempt from Section 112(j) requirements in accordance with 40 CFR 63.50(a)(1). Refer to section number 1 in the Source Category Determination portion of this letter for more explanation regarding the exemption in 40 CFR 63.50(a)(1).

The diesel generator, DG-3, rated at approximately 2,414 horsepower, is a four-stroke, reciprocating internal combustion engine, rated at greater than 500 horsepower. While the engine is greater than 500 brake horsepower, it is fueled by diesel fuel and is therefore a compression ignition engine versus a spark ignition engine. The diesel generator, DG-3, does not belong to the RICE affected source category because of the exception in the proposed rule at 40 CFR 63.6590(b)(2)(i) for compression ignition RICE.

The engines used for emergency service that are rated at less than 500 horsepower do not belong to the RICE affected source category because of the exception in the proposed rule at 40 CFR 63.6590(b)(2)(ii) for engines rated at less than or equal to 500 brake horsepower. This includes the diesel generators used for emergency service that are rated at less than 500 horsepower and the three natural gas-fired engines located at the Aquaculture Research Facility.

The three compression ignition, diesel-fired engines used solely for emergency service rated at greater than 500 horsepower (i.e., three engines rated at 536, 671, and 738 horsepower) do not belong to the RICE affected source category because of the exception in the proposed rule at 40 CFR 63.6590(b)(2)(i) for compression ignition RICE.

Pursuant to 40 CFR 63.52(e)(2)(i), based on the information available at this time, IDEM, OAQ has determined that following processes and emissions units at Purdue University do not belong to the affected source category, Reciprocating Internal Combustion Engines:

- Engines powered by various fuels that are used in research and laboratory activities;
- Engines powered by various fuels that are used for education and teaching as part of classes;
- One diesel-fired generator, DG-3, rated at 1800 kilowatts (approximately 2414 horsepower), located at the Purdue University power plant; and
- Engines used solely for emergency service including:
  - Several compression ignition, diesel-fired generators – several rated at less than 500 horsepower, one rated at 536 horsepower, one rated at 671 horsepower, and one rated at 738 horsepower; and
  - Three natural gas-fired units rated at less than 90 kilowatts (approximately 120 horsepower) located at the Aquaculture Research Facility.

Purdue University will not be required to submit a Part 2 MACT Application in accordance with 40 CFR 63.53(b) for this affected source category. If Purdue University is subject to Section 112(j) for any other source categories not included in this applicability determination, Purdue University shall submit a Part 2 MACT Application for those source categories.

If U.S. EPA promulgates a final MACT standard prior to IDEM, OAQ issuing a permit containing the Section 112(j) determination requirements, a source is no longer subject to Section 112(j) for that source category, including the requirement to submit a Section 112(j) Part 2 MACT Application. A source is still subject to Section 112(j) for any other source categories that do not have promulgated MACT standards.

#### PROMULGATED MACT STANDARDS

The final MACT standards for the following source categories were promulgated since the Section 112(j) deadline:

- Brick and Structural Clay Products on May 16, 2003;
- Cellulose Production Manufacturing on October 18, 2002;
- Clay Ceramics Manufacturing on May 16, 2003;
- Engine Test Cells/Stands on May 27, 2003;
- Fabric Printing, Coating, and Dyeing on May 29, 2003;
- Flexible Polyurethane Foam Fabrication Operations on April 14, 2003;
- Friction Products Manufacturing on October 18, 2002;
- Generic MACT on July 12, 2002;
- Integrated Iron and Steel on May 20, 2003;
- Large Appliance Surface Coating on July 23, 2002;
- Metal Coil Surface Coating on June 10, 2002; and
- Metal Furniture Surface Coating on May 23, 2003;
- Paper and Other Web Surface Coating on December 4, 2002;
- Polyvinyl Chloride and Copolymers Production on July 10, 2002.
- Reinforced Plastics Composites Production on April 21, 2003; and
- Wood Building Products Surface Coating on May 28, 2003.

Since these MACTs were promulgated, the categories are no longer affected source categories subject to Section 112(j). While Purdue University is not subject to Section 112(j) for these source categories, Purdue University should check the applicability of the promulgated MACT standard. If the promulgated MACT is applicable:

- (a) Purdue University shall comply with the promulgated MACT standard in accordance with the schedule provided in the MACT standard. The MACT requirements include the applicable General Provisions requirements of 40 CFR 63, Subpart A. Pursuant to 40 CFR 63.9(b), Purdue University shall submit an initial notification not later than 120 days after the effective date of the MACT, unless the MACT specifies otherwise.
- (b) The MACT and the General Provisions of 40 CFR 63, Subpart A will become new applicable requirements, as defined by 326 IAC 2-7-1(6), that must be incorporated into the Part 70 permit.

This determination is based on the information provided by Purdue University, IDEM, OAQ records, and the information currently available from the U.S. EPA. Note that if additional equipment or capacity is added or operational practices are changed (e.g., switching solvents from a solvent that contains no HAPs to a solvent containing HAPs), the Section 112(j) requirements may be triggered in accordance with 40 CFR 63.52(b). If the events described in 40 CFR 63.52(b) occur at the source, Purdue University shall submit a Part 1 MACT Application in accordance with the requirements and schedule contained in 40 CFR 63.52(b).

Questions should be directed to Rebecca Mason or Kim Cottrell, IDEM, OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, and ask for Rebecca

Mason at extension 3-9664 or Kim Cottrell at extension 3-0870, or dial (317) 233-9664 or (317) 233-0870.

Sincerely,

Original signed by  
Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

RM/KLC

CC: File - Tippecanoe County  
Tippecanoe County Health Department  
Air Compliance – Wanda Stanfield  
Air Permits – Vickie Cordell  
Administration Section  
U.S. EPA Region V – Genevieve Damico

Ms. Robin Mills Ridgway  
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